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ABSTRACT

The usefulness of an approach to reduce impulsive behavior in 11 institutionalized behavior disordered boys (10 to 16 years old) was investigated. Ss were taught to use five steps to solve cognitive problems. Steps involved task analysis, were modeled by the experimenter followed by reinforcement of verbalization of the rules, and included active controlled responding by the Ss. Twelve control Ss were exposed to the same tasks, encouraged to do as well as possible, and were reinforced for correct responding in the same manner as the treatment group. Pre- and posttest results on the Porteus Maze test Q score and on the latency score of the Matching Familiar Figures (MFF) test revealed significant differences. Q scores decreased for the experimental Ss but stayed the same for controls. Both groups demonstrated an increase in MFF latency scores. (CL)

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MODIFYING IMPULSIVE RESPONDING IN CONDUCT-DISORDERED INSTITUTIONALIZED BOYS[1]

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Almost ten years of research have suggested that an impulsive cognitive style may be modified through the application of a series of steps involving task analysis, modeling of a therapist's use of rules for controlling responding, followed by reinforcement of the verbalization of the rules, and of active controlled responding by the client. While the specific procedures have varied somewhat from study to study (e.g., Meichenbaum & Goodman, 1971; Douglas, 1972; Finch, Wilkinson, Nelson & Montgovery, 1975; Snyder & White, 1979; Kendall & Finch, 1978), the overall approach has come generally to be known as "cognitive behavior modification." O'Leary and Dubey (1979), Kendall and Finch (1979) and Urbain and Kendall (1980) have provided recent evaluative reviews of research on the utilization of these self control procedures with children.

For the most part, studies to date have utilized impulsive but otherwise ostensibly normal children, children being seen in guidance clinics, or children attending special education programs in the public schools. The vast majority of demonstrations have also been with children under 12 years of age.

The purpose of our efforts was to provide an investigation of the utility of these techniques in the reduction of impulsive responding in institutionalized, seriously impulsive and aggressive boys ranging from ten to 16 years of age.

METHOD

Subjects

All subjects were males who were institutionalized in a private residential school for the severely retarded and seriously disturbed. All came from lower SES backgrounds and had long histories of serious impulsive and antisocial behavior.

A typical history is that of "John":

> His mother died due to a "drug overdose" when he was five years old. Allegedly, the patient's father was a "drug dealer" and "died in jail."

> The youngster's early developmental milestones are unknown. Evidently he experienced much neglect, deprivation and turmoil throughout his life. Reportedly, he was hit by a car at age three and then had episodes of "convulsions" seemingly related to the car accident and to swallowing some medication. Previous medical reports note the seizures occurred prior to age three and that the patient has a history of anemia, speech, hearing and vision problems.
>
> John was hospitalized at the State Hospital, Children's Unit, due to "erratic acting out behavior." He was discharged to a group home for the mentally retarded. He ran from that facility. The patient was admitted to a psychiatric unit hospital for further treatment and disposition due to his disruptive, hyperactive and self-destructive-assaultive behavior (i.e., biting self or others, head-banging when having temper tantrums, and running away).

To be eligible, a subject must have had a PPVT IQ of 85 or over and have received a rating (by house or school staff) of seven or higher on the Conduct Problem subscale of the Behavior Problem Checklist (Quay & Peterson, 1979).

The 11 cases in the experimental group ranged from age 10-0 to 15-9 ($\bar{x}$ = 13.39; SD = 1.96). Their PPVT IQ's ranged from 81-100 ($\bar{x}$ = 90.1; SD = 5.96). Their Behavior Problem Checklist Conduct Problem scores ranged from 12 to 17 ($\bar{x}$ = 14.27; SD = 1.95).

The 12 cases in the control group ranged from 10-7 to 16-1 ($\bar{x}$ = 13.76; SD = 1.96); their IQ's ranged from 82 to 115 ($\bar{x}$ = 94.8; SD = 11.29) and their BPC scores ranged from 8 to 17 ($\bar{x}$ = 14.11; SD = 3.14).

The two groups were not significantly different with respect to IQ, age or Conduct Problem scores.

Pre- and Post-Testing and Case Assignment

Assignment to either experimental or control group was made randomly, as eligible cases were located, by the third author. Pretesting was done by a psychometrician who provided routine testing for the institution, and by the senior author. Post-testing was done by the senior author who was blind as to group membership of the subjects.

Dependent Measures

Measures were selected on the basis of their reported relationship to impulsivity and their previously demonstrated utility in measuring the effects of cognitive behavioral intervention. The Porteus Maze Q score and the latency score on the Matching Familiar Figures Test both met these criteria and were administered prior to the training and about two weeks after termination of the sessions.

Training Sessions

Experimental Group

The essential ingredient was the teaching of the experimental group to use five steps in the solution of a variety of cognitive tasks in lw sessions held at the rate of two per week.

The five steps (1. "Find out what I'm supposed to do", 2. "Look at all the possibilities", 3. "Focus in", 4. "Choose my answer" and 5. "I did a good job or I made a mistake, I can remember to be more careful next time") were first modeled by the therapist, then spoken aloud, then whispered, then silently verbalized by the client. Tangible reinforcement (pennies) was initially used for verbalizing the rules and for correct responses (Sessions 1-3), then for correct responding only (Sessions 4-14). While many programs have not utilized tangible rewards, we felt that the extreme nature of our subjects made the use of such rewards almost mandatory until we could demonstrate otherwise.

The tasks used in the sessions required both motor and verbal responding and included the Raven's Progressive Matrices, the Children's Imbedded Figure Tests, the Development Test of Visual-Motor Integration, the Visual-Sequential Memory Test of the ITPA and the "Following Directions" sets of the Special Skills Series published by the Barnell-Loft Company.

A manual providing detailed instruction to the therapist was developed and is available from the senior author.

Control Group

The control group was exposed to the same tasks, were encouraged to do as well as possible, and were reinforced for correct responding in the same manner as the treatment group. Thus, exposure to adult attention, practice on the instructional materials, and reinforcement were provided to the controls but in the absence of the modeling and use of the "rules."

Therapist

Subsequent to field testing of the procedures by the first two authors, the training was done by a female therapist who had had teaching and supervisory educational experience.

RESULTS

The first question we asked was whether or not both our experimental or control subjects would cooperate with our efforts over the 14 sessions. The answer to this question was affirmative even though the tasks were sometimes difficult and frustrating, especially for those of lower IQ. We strongly expect that the opportunity to earn money was involved in the sustained efforts of our subjects.

Since the Porteus Q Score is a function of the number of mazes attempted, the Q Score was divided by the number of mazes upon which it was calculated prior to further analysis.

Table 1 presents the means and SD's for the adjusted Q Scores for the MFF Latency Score.

As can be seen from the Table, the Q Scores decrease for the experimentals but stay the same for the controls. A test of the significance of the pre- vs. post-difference score resulted in a "t" of 1.84 which was significant at the .04 level (one-tailed). Both groups registered an increase in MFF Latency Scores. A test of the pre-post difference scores produced a "t" of 1.34, $p = .09$ (one-tailed). Given the small sample size the obtained differences are encouraging.

Table 1

	ADJUSTED "Q" SCORES				MFF LATENCY SCORES			
	Pre		Post		Pre		Post	
	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
EXPERIMENTAL (n = 11)	4.73	2.04	2.89	1.32	8.05	5.17	16.25	11.31
CONTROL (n = 12)	3.47	1.28	3.71	1.68	11.90	6.41	15.89	7.84

DISCUSSION

We are continuing to add subjects to our groups with the expectation that a larger sample size will provide highly statistically significant results.

Since our ultimate goal is to reap the benefits of the efforts of the training in the classrooms and living units of our school, our subsequent research will add features designed to integrate the training into these settings.

We recognize that there remain basic questions as to what aspects of the training are necessary and/or sufficient. Beyond perhaps manipulating the use of the monetary reward, we will leave the basic questions to be researched by those not so directly involved in service delivery.

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